

Listing of Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1 - 8: canceled.

9. (original) An isolated polypeptide comprising a polypeptide selected from the group consisting of:

- (a) a polypeptide consisting of one of the complete amino acid sequences of Table 1;
- (b) a polypeptide consisting of one the complete amino acid sequences of Table 1 except the N-terminal residue;
- (c) a fragment of the polypeptide of (a) having biological activity; and
- (d) a fragment of the polypeptide of (a) which binds to an antibody specific for the polypeptide of (a).

10. (original) An isolated antibody specific for the polypeptide of claim 9.

Claims 11 - 15: canceled.

15. (original) A hybridoma which produces an antibody of claim 10.

16. (original) A vaccine, comprising:

- (1) one or more *B. burgdorferi* polypeptides selected from the group consisting of a polypeptide of claim 9; and
- (2) a pharmaceutically acceptable diluent, carrier, or excipient; wherein said polypeptide is present, in an amount effective to elicit protective antibodies in an animal to a member of the *Borrelia* genus.

17. (original) A method of preventing or attenuating an infection caused by a member of the *Borrelia* genus in an animal, comprising administering to said animal a polypeptide of claim 9, wherein said polypeptide is administered in an amount effective to prevent or attenuate said infection.

Claim 18: canceled.

19. (original) A method of detecting *Borrelia* nucleic acids in a biological sample obtained from an animal, comprising:

- (a) amplifying one or more *Borrelia* nucleic acid sequences in said sample using polymerase chain reaction, and
- (b) detecting said amplified *Borrelia* nucleic acid.

Claim 20: canceled.

21. (original) A method of detecting *Borrelia* antibodies in a biological sample obtained from an animal, comprising

- (a) contacting the sample with a polypeptide of claim 9; and
- (b) detecting antibody-antigen complexes.

22. (New) An isolated polynucleotide encoding an amino acid sequence at least 95% identical to the full length amino acid sequence of SEQ ID NO:627.

23. (New) The isolated polynucleotide of claim 22 which is fused to a heterologous polynucleotide sequence.

24. (New) The isolated polynucleotide of claim 23, wherein said heterologous polynucleotide sequence encodes a heterologous polypeptide.

25. (New) The isolated polynucleotide which is fully complementary to the polynucleotide of claim 22.

26. (New) A method for making a recombinant vector comprising inserting the isolated polynucleotide of claim 22 into a vector.

27. (New) A recombinant vector comprising the isolated polynucleotide of claim 22.

28. (New) The recombinant vector of claim 27, wherein said isolated polynucleotide is operably associated with a heterologous regulatory sequence that controls gene expression.

29. (New) An isolated recombinant host cell comprising the isolated polynucleotide of claim 22.

30. (New) The isolated recombinant host cell of claim 29, wherein said polynucleotide is operably associated with a heterologous regulatory sequence that controls gene expression.

31. (New) A method for producing a polypeptide, comprising culturing the host cell of claim 29 under conditions suitable to produce the polypeptide encoded by said polynucleotide.

32. (New) An isolated polynucleotide which encodes at least 30 contiguous amino acid residues of SEQ ID NO:627.

33. (New) The isolated polynucleotide which is fully complementary to the polynucleotide of claim 32.

34. (New) The isolated polynucleotide of claim 32 which encodes at least 50 contiguous amino acid residues of SEQ ID NO:627.

35. (New) The isolated polynucleotide which is fully complementary to the polynucleotide of claim 34.

36. (New) An isolated polynucleotide consisting of at least 100 contiguous nucleotides of SEQ ID NO:625.

37. (New) The isolated polynucleotide which is fully complementary to the polynucleotide of claim 36.

38. (New) The isolated polynucleotide of claim 36 consisting of at least 300 contiguous nucleotides of SEQ ID NO:625.

39. (New) The isolated polynucleotide which is fully complementary to the polynucleotide of claim 38.

40. (New) The isolated polynucleotide of claim 38 consisting of the full length sequence of SEQ ID NO:625.

41. (New) An isolated polynucleotide comprising a nucleic acid sequence encoding an epitope-bearing portion of the amino acid sequence of SEQ ID NO:627.

42. (New) The isolated polynucleotide of claim 41 wherein the epitope-bearing portion of the amino acid sequence of SEQ ID NO:627 is from about Cys-24 to about Asn-26.

43. (New) A method of detecting *Borrelia* nucleic acids in a biological sample comprising:

- (a) contacting the sample with the nucleic acid of claim 22, under conditions such that hybridization occurs, and
- (b) detecting hybridization of said nucleic acids to the one or more *Borrelia* nucleic acid sequences present in the biological sample.

44. (New) A method of detecting *Borrelia* nucleic acids in a biological sample comprising:

- (a) contacting the sample with the nucleic acid of claim 32, under conditions such that hybridization occurs, and
- (b) detecting hybridization of said nucleic acids to the one or more *Borrelia* nucleic acid sequences present in the biological sample.

45. (New) A method of detecting *Borrelia* nucleic acids in a biological sample comprising:

- (a) contacting the sample with the nucleic acid of claim 36, under conditions such that hybridization occurs, and
- (b) detecting hybridization of said nucleic acids to the one or more *Borrelia* nucleic acid sequences present in the biological sample.